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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,795	02/10/2004	Richard Heinen	DN2004013	9693

27280 7590 09/21/2007

THE GOODYEAR TIRE & RUBBER COMPANY
INTELLECTUAL PROPERTY DEPARTMENT 823
1144 EAST MARKET STREET
AKRON, OH 44316-0001

EXAMINER	
MAKI, STEVEN D	
ART UNIT	**PAPER NUMBER**
1733	

MAIL DATE	DELIVERY MODE
09/21/2007	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/775,795
Filing Date: February 10, 2004
Appellant(s): HEINEN, RICHARD

Nancy T. Krawczyk
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6-5-07 appealing from the Office action mailed 10-4-06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct. The grounds of rejection to be reviewed on appeal are repeated below:

#1 Claims 1, 5, 10-12, 15-16 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 456 (EP 890456) in view of at least one of Japan 207 (JP 6-135207), Cesarini et al (WO 00/30874) and Iwamura et al (US 6109317).

#2 Claims 1, 5-7, 11-12, 15-16, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 413 (JP 11-5413) in view of at least one of Japan 207, Cesarini et al and Iwamura et al.

GROUNDS OF REJECTION NOT ON REVIEW

The following grounds of rejection have not been withdrawn by the examiner, but they are not under review on appeal because they have not been presented for review in the appellant's brief.

(A) Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 456 in view of at least one of Japan 207, Cesarini et al and Iwamura et al as applied above and further in view of Japan 907 (JP 2-41907).

(B) Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 456 in view of at least one of Japan 207, Cesarini et al and Iwamura et al as applied above and further in view of Nakagawa (US 6102093).

(C) Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 413 in view of at least one of Japan 207, Cesarini et al and Iwamura et al as applied above and further in view of German 574 (DE 614574) or Gerresheim et al (US Des. 414728).

(D) Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 413 in view of at least one of Japan 207, Cesarini et al and Iwamura et al as applied above and further in view of Himuro (US 6892775) or Boiocchi et al (US 5964266).

(E) Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 413 in view of at least one of Japan 207, Cesarini et al and Iwamura et al as applied above and further in view of Japan 508 (JP 2-179508).

(F) Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 413 in view of at least one of Japan 207, Cesarini et al and Iwamura et al as applied above and further in view of Japan 907 (JP 2-41907).

Rejections A and B, which have not been presented for review in appellant's brief, stand or fall with rejection #1.

Rejections C, D, E and F, which have not been presented for review in appellant's brief, stand or fall with rejection #2.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

EP 890456	Europe 456	Jan. 13, 1999
JP 11-005413	Japan 413	Jan. 12, 1999
JP 06-135207	Japan 207	May 17, 1994
WO 00/030874	Cesarini et al	June 2, 2000
6109317	Iwamura et al	Aug. 29, 2000

USPTO translations for all non-English references (including Japan 413 and Japan 207), which were relied upon by the examiner in the final office action dated 10-4-06, are provided in the Appendix to this Examiner's Answer.

Europe 456 , directed to an *all season tire for use on wet roads*, discloses a tire with a tread comprising two circumferential grooves and one row of tetragon shaped blocks 4 on the tire's equatorial plane wherein the tetragon shaped blocks 4 are separated by steep slant grooves 2, which are inclined at an angle of 10-45 degrees (e.g. 20 degrees) with respect to the circumferential direction. Each block has a "relatively large circumferential component". In figure 1, four shoulder grooves 3 are provided for each tetragon block 4.

Japan 413, directed for an *all weather type for use on wet roads*, discloses a tire with a tread comprising three circumferential grooves, two rows of tetragon shaped blocks 8 wherein the tetragon shaped blocks 8 are separated by steep slant grooves 6, which are inclined at angle of 10-45 degrees (e.g. 20 degrees) with respect to the circumferential direction. The tetragon shaped blocks 8 have a length in the range of 2-5 times the length of the adjacent side blocks. In figure 1, four shoulder grooves 7 are provided for each tetragon block 8.

Japan 207, directed to a tire having improved wandering performance while *guaranteeing wet performance*, discloses a tire with a tread comprising two circumferential grooves 19L, 19R and steep slant grooves 26. Circumferential grooves are described as providing good wet performance. In figure 1, *circumferential groove 19L, steep slant groove 26 and circumferential groove 19R have a length longer than the ground contact surface 20 (footprint).* In figure

1, four shoulder grooves are located within the ground contact surface 20 (footprint).

Cesarini et al discloses a tire with a tread comprising steep slant grooves wherein the steep slant grooves are inclined at angle alpha of 0-40 degrees (e.g. 20 degrees) with respect to the circumferential direction. *The steep slant grooves have a length longer than that of the footprint for drainage of water underneath the tire footprint.* See page 7 lines 32-36.

Iwamura et al , directed to *improving wet performance*, discloses a tire with a tread comprising two circumferential grooves 3 and steep slant main grooves 2 wherein the inner part of the steep slant main groove 2 is inclined at angle theta1 of 5-15 degrees with respect to the circumferential direction. Iwamura et al explains that "... each main groove provides a substantially straight and almost circumferentially extending relatively long part, which partly serves effectively as circumferential grooves present in customary tires" (col. 4 lines 51-55). In figure 3, the steep slant main groove 2 identified with the number one within a circle has a length longer than the illustrated ground contact part (footprint) so as to have two open ends. Iwamura et al teaches that *the length of the steep slant grooves 2 is selected that each steeply slanted main groove is open at least at least one end in the ground contact patch (footprint), whereby required water-dissipating capability is achieved.*

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Europe 456 (tetragon blocks on EP)

Claims 1, 5, 10-12, 15-16 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 456 (EP 890456) in view of at least one of Japan 207 (JP 6-135207), Cesarini et al (WO 00/30874) and Iwamura et al (US 6109317).

Europe 456, directed to an all season pneumatic tire for passenger cars, discloses a pneumatic tire having a tread comprising a row of tetragon blocks 4 between two circumferential grooves 1 wherein (1) the blocks 4 have a "relatively large circumferential component" (col. 6 lines 44-45) and (2) are separated by steep slant grooves 2 inclined at a small angle (e.g. 20 degrees) with respect to the circumferential direction. On the left side of figure 1, four shoulder grooves are provided for each tetragon block 4. Hence, Europe 456 substantially discloses the claimed invention except that Europe 456 is silent as to the length of the block relative to the footprint.

Japan 207, directed to a tire having improved wandering performance while *guaranteeing wet performance*, discloses a tire with a tread comprising two circumferential grooves 19L, 19R and steep slanted grooves 26. Circumferential grooves are described as providing good wet performance. In figure 1, *each of circumferential groove 19L, steep slanted groove 26 and circumferential groove 19R have a length longer than the ground contact surface 20 (footprint).* In figure 1, four shoulder grooves (on the left side) are located within the ground contact surface 20 (footprint). See figures and translation. One of ordinary skill in the art would readily understand that the ground contact surface 20 (footprint), which has a generally rectangular shape, is for the tire at normal pressure.

Cesarini et al discloses a tire with a tread comprising steep slant grooves wherein the steep slant grooves are inclined at angle alpha of 0-40 degrees (e.g. 20 degrees) with respect to the circumferential direction. *The steep slant grooves have a length longer than that of the footprint for drainage of water underneath the tire footprint.*

Cesarini et al illustrates the length of the steep slant groove being longer than the footprint in figure 2. The footprint has an asymmetrical shape since the tire was mounted on the vehicle with a camber angle of 2 degrees. The footprint is for the tire at nominal pressure and nominal load. At page 17, Cesarini et al describes obtaining a footprint for a tire inflated to a pressure of 3 bar (43.5 psi).

Iwamura et al, directed to *improving wet performance*, discloses a tire with a tread comprising two circumferential grooves 3 and steep slant main grooves 2 wherein the inner part of the steep slant main groove 2 is inclined at angle theta1 of 5-15 degrees with respect to the circumferential direction. Iwamura et al explains that "... each main groove provides a substantially straight and almost circumferentially extending relatively long part, which partly serves effectively as circumferential grooves present in customary tires" (col. 4 lines 51-55). In figure 3, the steeply slanted main groove 2 identified with the number one within a circle has a length longer than the illustrated ground contact part (footprint) so as to have two open ends. Iwamura et al teaches that *the length of the steep slant grooves 2 is selected that each steep slant main groove is open at least at least one end in the ground contact patch (footprint), whereby required water-dissipating capability is achieved.* Iwamura et al defines the ground contact patch (footprint) as being for a tire inflated to a standard inner pressure with 88% maximum load (col. 3 lines 44-50).

As to claims 1 and 20, it would have been obvious to one of ordinary skill in the art to provide Europe 456's tire *with a footprint* such that the circumferential length of the steep slant grooves and the circumferential length of the tetragon blocks is at least 100

% (claim 1) or 100-400% (claim 20) of the footprint length of the footprint at normal pressure IN VIEW OF:

(1) Europe 456's teaching to provide a pneumatic car tire for use on wet roads with central slant grooves and tetragon blocks wherein (a) the tetragon blocks have a "relatively large circumferential component" (col. 6 lines 44-45), (b) the circumferential length of the blocks is longer than the circumferential length of the central slant grooves, which extend between two circumferential grooves and (c) four shoulder grooves are provided for each tetragon block,

AND IN VIEW OF:

(2) at least one of (A) Japan 207's suggestion to provide a pneumatic car tire for use on wet roads with a footprint 20 (figure 1) such that (a) the central slant grooves 26 between two circumferential grooves have a length longer than the footprint length (figure 1) and (b) the footprint contains upto four shoulder grooves, (B) Cesarini et al's suggestion to provide a pneumatic car tire for use on wet roads with a footprint (figure 2) such that the central slant grooves have a length longer than the footprint so as to be able to drain water underneath the tire footprint (page 7 lines 33-36, page 16 lines 23-24) and (C) Iwamura et al's suggestion to provide a pneumatic car tire for use on wet roads with a footprint (figure 3) such that (a) a central slant groove between two circumferential grooves has a length longer than the footprint in order to achieve required water dissipating capability (col. 2 lines 6-10) and (b) the footprint contains four shoulder grooves.

Hence, Europe 456's tire tread, like many tire treads, comprises circumferential grooves and lateral grooves. Europe 456's tread also has specialized grooves. The specialized grooves are the steep slant grooves 2. These steep slant grooves 2 are unique in that, although they have a substantially longer circumferential length compared to the lateral grooves (gently slant grooves 3), they do not extend completely around the tire circumference as do the circumferential grooves, which necessarily communicate with the edge of the footprint of the tire. When using steep slant grooves 26 in a central area of the tread, Japan 207 teaches providing the footprint of the tire such that the steep slant groove 26 extends completely across the length of the footprint (figure 1). One of ordinary skill in the art would readily understand that the steep slant groove 26 has a length longer than the footprint 20 in figure 1 to drain water from the footprint. Japan 207 teaches that the circumferential grooves 19L, 19R drain water and that the circumferential grooves and the steep slant groove 26 (which is inclined at a small angle with respect to the circumferential direction) extend across the entire length of the footprint 20 (figure 1). When using steep slant grooves in a central area of the tread, Cesarini et al teaches providing the footprint such that the steep slant groove S extend completely across the length of the footprint (figure 2). The benefit of having such a footprint is allowing water to be able to drain the water under the tire footprint. See for example page 7 lines 33-36. When using steep slant grooves 2, Iwamura et al teaches providing the footprint of the tire such that a steep slant groove extends completely across the length of the footprint (figure 3). At col. 2 lines 6-10, Iwamura et al teaches that at least one end of the steep slant main groove is open to the edge of

the footprint. Each of the six slant main grooves in the footprint of Iwamura's figure 3 has at least one open end at the edge of the footprint. The first of these slant main grooves (the one identified with the number 1 within a circle) has two open ends. This groove therefore extends across the entire length of the footprint. It is acknowledged that the specific tread pattern of the secondary art contain differences from Europe 456's tread pattern. The constant teaching within each of these secondary references is that when using steep slant grooves, the footprint of the tire must be provided such that a steep slant groove extends completely across the length of the footprint. The applied prior art when considered as a whole **teaches toward** providing the footprint of Europe 456's tire such that steep slant groove 2 of Europe 456 extends completely across the length of the footprint. The general knowledge of one of ordinary skill in the art, as evidenced by at least one of Japan 207, Cesarini et al and Iwamura et al, is that when water drainage / wet performance is desired so that the tire can be used on wet roads, circumferential grooves / steep slant grooves should across the entire length of the footprint. When Europe 456's tire has footprint in which a steep slant groove 2 extends completely across the footprint, the length of the block 4 adjacent to the slant groove 2 also extends completely across the footprint since the elongated blocks 4 are longer than the steep slant grooves 2. This arrangement is consistent with Europe 456's recommendation to provide each of the blocks with a "relatively large circumferential component" (col. 6 lines 43-46).

As to claim 5, the width of region TC is 15-45% such as 25%.

As to claim 10, the blocks are on the EP.

As to claim 11, the claimed distance d would have been obvious in view of the shape and length of the center blocks shown by Europe 456.

As to claim 12, the acute angle corners of the center blocks are chamfered.

As to claim 15, Europe 456 shows the width of the slant grooves as being smaller than the width of the circumferential grooves.

As to claim 16, the claimed width WB would have been obvious in view of (1) Europe 456's teaching to use blocks having a relatively large circumferential length in a central region having a width of 15-45% TW and (2) Europe 456 shows the center blocks as having a width (perpendicular to the short grooves) less than the distance between the circumferential grooves.

As to claim 19, it would have been obvious to incline the circumferentially extending sides of the center blocks at an angle greater than 0 degrees to the centerline since Japan 207 suggests inclining circumferentially extending sides of blocks in a central region at an angle of about 2 degrees to improve wandering performance.

Japan 413 (two columns of tetragon blocks)

Claims 1, 5-7, 11-12, 15-16, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 413 (JP 11-5413) in view of at least one of Japan 207, Cesarini et al and Iwamura et al.

Japan 413 discloses an all weather pneumatic passenger car tire comprising two rows of tetragon shaped central blocks 8 wherein each block row is between a center circumferential groove 4 and an outer circumferential groove 1. The blocks are separated by steep slant grooves 6 inclined at an acute angle of 10-45 degrees (e.g. 20

degrees) with respect to the circumferential direction. The length of the central blocks 8 is 2-5 times the length of adjoining blocks 9. On the left side of the tread, four shoulder grooves 7 are provided for each block 8. See figures and translation. Hence, Japan 413 substantially discloses the claimed invention except that Japan 413 is silent as to the length of the block relative to the footprint.

The teachings of Japan 207, Cesarini et al and Iwamura et al are discussed above.

As to claims 1 and 20, it would have been obvious to one of ordinary skill in the art to provide Japan 413's tire *with a footprint* such that the circumferential length of the slant grooves and the circumferential length of the central blocks separated by the steep slant grooves is at least 100 % (claim 1) or 100-400% (claim 20) of the footprint length since IN VIEW OF:

(1) Japan 413's teaching to provide a pneumatic car tire for use on wet roads with central slant grooves and tetragon blocks wherein (a) the tetragon blocks have a length of 2-5 times the length of adjoining blocks (shoulder blocks), (b) the circumferential length of the tetragon blocks is longer than the circumferential length of the central slant grooves, which extend between two circumferential grooves and (c) two to five shoulder grooves are provided for each tetragon block,

AND IN VIEW OF:

(2) at least one of (A) Japan 207's suggestion to provide a pneumatic car tire for use on wet roads with a footprint 20 (figure 1) such that (a) the central slant grooves 26 between two circumferential grooves have a length longer than the footprint length

(figure 1) and (b) the footprint contains upto four shoulder grooves, (B) Cesarini et al's suggestion to provide a pneumatic car tire for use on wet roads with a footprint (figure 2) such that the central slant grooves have a length longer than the footprint so as to be able to drain water underneath the tire footprint (page 7 lines 33-36, page 16 lines 23-24) and (C) Iwamura et al's suggestion to provide a pneumatic car tire for use on wet roads with a footprint (figure 3) such that (a) a central slant groove between two circumferential grooves has a length longer than the footprint in order to achieve required water dissipating capability (col. 2 lines 6-10) and (b) the footprint contains four shoulder grooves.

Hence, Japan 413's tire tread, like many tire treads, comprises circumferential grooves and lateral grooves. Japan 413's tread also has specialized grooves. The specialized grooves are the steep slant grooves 6. These steep slant grooves 6 are unique in that, although they have a substantially longer circumferential length compared to the lateral grooves (gently slant grooves 7), they do not extend completely around the tire circumference as do the circumferential grooves, which necessarily communicate with the edge of the footprint of the tire. When using steep slant grooves 26 in a central area of the tread, Japan 207 teaches providing the footprint of the tire such that the steeply slant groove 26 extends completely across the length of the footprint (figure 1). One of ordinary skill in the art would readily understand that the steep slant groove 26 has a length longer than the footprint 20 in figure 1 to drain water from the footprint. Japan 207 teaches that the circumferential grooves 19L, 19R drain water and that the circumferential grooves and the steep slant groove 26, which is

inclined at a small angle with respect to the circumferential direction, extend across the entire length of the footprint 20 (figure 1). When using steep slant grooves in a central area of the tread, Cesarini et al teaches providing the footprint such that the steep slant groove S extend completely across the length of the footprint (figure 2). The benefit of having such a footprint is allowing water to be able to drain the water under the tire footprint. See for example page 7 lines 33-36. When using steep slant grooves 2, Iwamura et al teaches providing the footprint of the tire such that a steep slant groove extends completely across the length of the footprint (figure 3). At col. 2 lines 6-10, Iwamura et al teaches that at least one end of the steep slant main groove is open to the edge of the footprint. Each of the six slant main grooves in the footprint of Iwamura et al's figure 3 has at least one open end at the edge of the footprint. The first of these slant main grooves (the one identified with the number 1 within a circle) has two open ends. This groove thereby extends across the entire length of the footprint. It is acknowledged that the specific tread pattern of the secondary art contain differences from Japan 413's tread pattern. The constant teaching within each of these secondary references is that when using a steep slant groove, the footprint of the tire must be provided such that a steep slant groove extends completely across the length of the footprint. The applied prior art when considered as a whole **teaches toward** providing the footprint of Japan 413's tire such that a steeply slant groove 6 of Japan 413 extends completely across the length of the footprint. The general knowledge of one of ordinary skill in the art, as evidenced by at least one of Japan 207, Cesarini et al and Iwamura et al, is that when water drainage / wet performance is desired so that the tire can be used

on wet roads, circumferential grooves / steep slant grooves should across the entire length of the footprint. When Japan 413's tire has footprint in which a steeply slant groove 6 extends completely across the footprint, the length of the block 8 adjacent to the slant groove 6 also extends completely across the footprint since the elongated blocks 8 are longer than the steep slant grooves 6. This arrangement is consistent with Japan 413's recommendation to provide each of the blocks with a relatively large circumferential component of 2-5 times the length of the side blocks.

As to claim 5, see the spacing of the circumferential grooves in figure 1.

As to claims 6 and 7, Japan 413 teaches two circumferential grooves in one half wherein one circumferential groove is on the EP.

As to claims 11 and 16, the claimed distance d and width WB would have been obvious in view of the shape of Japan 413's blocks and Japan 413's teaching to provide the blocks with a length 2-5 times the length of the adjoining blocks.

As to claim 12, Japan 413 teaches chamfers 16.

As to claim 15, see figure 1 and table 2.

With respect to "the tread comprising a single circumferentially extending column of tetragon shaped blocks located only in one tread half" (claim 21, emphasis added), Japan 413 places a single circumferentially extending column of tetragon shaped blocks only in one tread half. In other words, neither of Japan 413's rows of tetragon blocks is located in both tread halves.

(10) Response to Argument

With respect to the Supreme Court decision in KSR, appellant states "... while the court upheld that an obviousness analysis 'cannot be confined by a formalistic conception', there must still be teaching, suggestion, or motivation in the prior art that would suggest to one skilled in the art to make the combination proposed in the rejection to render a claimed invention obvious and explicit reasons for combining prior art must be provided." (page 7 of Brief filed 6-5-07, emphasis added). Contrary to appellant's argument, the Supreme Court did not hold in KSR that "there must still be teaching, suggestion, or motivation". Instead, the Supreme Court stated: "The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation ... There is no necessary inconsistency between the idea underlying the TSM [teaching, suggestion, motivation] text and the Graham analysis. But when a court transforms the general principle into a rigid rule [there must be teaching, suggestion, or motivation] that limits the obviousness inquiry, as the Court of Appeals did here, it errs." KSR International Co. v. Teleflex Inc., 127 S. Ct. 1727, 82 USPQ2d 1385 (Supreme Court April 30, 2007).

Europe 456

What is the length of the footprint of Europe 456's tire? The answer to this question might be obtained by actually manufacturing Europe 456's tire. Alternatively, the answer to this question can and should be obtained from the prior art's teachings relating to the footprint of a tire (the general knowledge of one of ordinary skill in the tire

tread art). The obviousness issue is what length the footprint of Europe 456's tire should have. No modification of the length of Europe 456's grooves is necessary.

Appellant argues that Japan 207 provides no specific teaching why the groove 26 must have a length greater than footprint length. This argument is not persuasive. One of ordinary skill in the art would readily understand that steeply slant groove 26 has a length longer than the footprint as shown in figure 1 to drain water from the footprint. Japan 207 teaches that circumferential grooves provide a tire with good wet performance. In the prior art embodiment figure 3, good wet performance is provided by five circumferential grooves 5 (each of which have a length longer than the illustrated footprint). In prior art embodiment figure 4, good wet performance is provided by four circumferential grooves 5 (each of which have a length longer than the illustrated footprint). In Japan 207's invention tire (figure 1), the tread has three circumferential extending grooves (19L, 26, 19R). Since steep slant groove 26 has a length longer than the footprint, one of ordinary skill in the art would readily expect that this slant groove 26 improves wet performance. For additional evidence supporting this conclusion, see figure 2 and discussion thereof in Cesarini et al.

Appellant argues that all of the water drainage benefits taught by Japan 207 are from the inclination and phase shift of the tread edges forming the main circumferential grooves. Examiner disagrees. The inclination and phase shift of the edges of the circumferential grooves improve the wandering performance of the tire. Wandering performance is improved because the inclination of the edges at the angle theta

changes the interaction between the edges of the circumferential grooves and the edges of the rain grooves (the edges of grooves formed in the road surface).

Appellant argues that Japan 207 fails to teach improved water drainage of the tread due to any presumed relationship between the length of the slant groove 26 and the footprint length. This argument is not persuasive. Japan 207 illustrates extending the slant groove 26 and the circumferential grooves across the footprint 20. See figure 1. In view of Japan 207's teaching that circumferential grooves improve wet performance so that the tire can be used on wet roads, one of ordinary skill in the art would readily understand that the circumferentially extending slant groove 26 improves wet performance.

Appellant comments on Japan 207's teaching to incline block edges 23L, 24L and the width of the center rib block being 53%. More properly, Japan 207 shows providing a footprint as shown in figure 1. The left side of this figure 1 footprint (and also the left side of the prior art figure 3 footprint) includes three shoulder lateral grooves. When Europe 456's tire is provided with a footprint demonstrating only three shoulder lateral grooves on one side, the block 4 has a length longer than the footprint length. Compare the shoulder lateral grooves 3 of Europe 456 with the number of shoulder grooves in Japan 207's figure 1 footprint.

With respect to prior art figures 3 and 4 of Japan 207, appellant asserts: "...any disclosed water drainage benefits are achieved in a tread pattern that does not have a slanted groove with a length greater than a footprint length" (page 7 of Brief filed 6-5-07). This argument is not persuasive since the tread of prior art figures 3 and 4 in

Japan 207 have a greater number of circumferential grooves than does the tread in figure 1 of Japan 207. In order to prevent the number of grooves extending across the footprint from being reduced from four or five to two, Japan 207 extends slant groove 26 across the entire footprint, the number of grooves circumferentially extending across the footprint thereby being three.

Appellant notes that Europe 456 already has means via the circumferential grooves that communicate with the lateral grooves to move water out of the footprint. Examiner notes that Japan 207, like Europe 456, discloses a tire tread having two main circumferential grooves and lateral grooves. Examiner adds that Japan 207 shows that even when such means are used, the footprint length is relatively short in that only a limited number of shoulder grooves appear in the footprint. When a limited number of shoulder grooves appear in Europe 456's figure 1 tread, then Europe 456's elongated blocks having a "relatively large circumferential component" have a circumferential length at least equal to the footprint length.

With respect to Cesarini et al, appellant states "Appellant acknowledges that WO 00/30874 does teach that a steeply inclined groove that crosses the footprint leading and trailing edges does indeed drain water out of the footprint" (page 9 of Brief filed 6-5-07).

With respect to Cesarini et al, appellant argues that the primary reason why Cesarini et al must have a groove with a length greater than the footprint length is that Cesarini et al teaches that the tread should have no circumferential groove. Appellant comments that Cesarini et al teaches elimination of all isolated blocks. Appellant

argues that Cesarini et al teaches away from the entire tread design of Europe 456. These arguments are not persuasive. The examiner acknowledges that Cesarini et al teaches a tread having no circumferential grooves. However, Cesarini et al informs one of ordinary skill in the art that water can be drained from a steeply slant groove when that groove extends completely across the length of the footprint. Neither Europe 456 nor Cesarini et al teach away from draining water from the footprint to improve wet performance.

Appellant argues that similar to the tread of Europe 456, the tread of Japan 207 does not suffer from the problem of no water drainage being resolved by WO 00/03874. Examiner agrees that good wet performance per the teachings of Japan 207 can be obtained if both the steep slant groove and the circumferential grooves extend across the footprint 20 as shown in figure 1 of Japan 207. Nothing in Japan 207 teaches that steep slant groove 26 has no water draining function.

Appellant argues that Iwamura et al is silent as to an exact reason for the length of the footprint relative to the length of the groove. This argument is not persuasive. Figure 3 of Iwamura et al shows the ground contact patch (footprint) of the tire. In this footprint, each of the steep slant grooves 2 has at least one end open to the edge of the footprint. These circumferentially extending steep slant groove open to the edge of the footprint to obtain the required water dissipating capability (col. 2 lines 6-10). When two end instead of only one end of the circumferentially extending steep slant groove is open to the edge of the footprint, one of ordinary skill in the art would readily expect from Iwamura et al's disclosure that water dissipating capability would be further

improved. Water at the leading edge of the footprint can enter one open end of the steep slant and leave via the other open end at the trailing edge of the footprint. In figure 3, the steep slant groove having two open ends (and therefore having a length longer than the footprint) is identified by the number one within a circle.

Appellant argues that a combination of Europe 456 and Iwamura et al would result in a shorter block. Examiner disagrees. Iwamura et al shows three shoulder grooves 4 in the footprint on the left side. The use of a footprint as shown in figure 3 of Iwamura et al for Europe 456's tire would result in three of Europe 456's shoulder grooves 3 appearing in the footprint. When only three of Europe 456's shoulder grooves 3 appear in the footprint, the block 4 of Europe 456 has a length longer than the footprint.

Appellant argues and examiner agrees that Iwamura teaches that at least five steep slant grooves 2 appear in the footprint. Examiner adds that Iwamura also shows three shoulder lateral grooves 4 on the left side of the footprint. When Europe 456's tire is provided with a footprint demonstrating only three shoulder lateral grooves on one side, the block 4 has a length longer than the footprint length. Compare the shoulder lateral grooves 3 of Europe 456 with the number of shoulder grooves 4 in Iwamura et al's figure 3 footprint.

Appellant comments and examiner agrees that the tread patterns of Europe 456 and Iwamura et al are distinct from each other. However, Iwamura et al and Europe 456 share the use of a steep slant groove which Iwamura et al teaches should have at

least one end open to the edge of the footprint to provide the required water dissipating capability.

Contrary to appellant's arguments, examiner asserts that Japan 207 or Cesarini et al or Iwamura et al suggest provide the footprint of Europe 456 such that the steep slant groove and long tetragon block have a length longer than the footprint. When considered *collectively*, examiner asserts that the Japan 207, Cesarini et al and Iwamura et al advise one of ordinary skill in the art to improve water drainage / wet performance by extending a steep slant groove across the entire length of the footprint. Examiner emphasizes that no matter what tread pattern is used (all blocks as in Japan 207, only shoulder blocks as in Iwamura et al, no blocks as in Cesarini), the *footprint length* should be relatively short so that a steeply slant groove extends completely across the footprint.

Appellant argues and examiner agrees that contrary teachings of a reference cannot be ignored. However, the references show what size footprint should be used for a tire for use on wet roads. In particular, the references show that a footprint size should be used such that steep slant groove and circumferential grooves have a length longer than the footprint - only the expected results of draining water from the footprint being obtained. Examiner emphasizes that no matter what tread pattern is used (all blocks as in Japan 207, only shoulder blocks as in Iwamura et al, no blocks as in Cesarini), the *footprint length* should be relatively short so that a steeply slant groove extends completely across the footprint.

Appellant argues and examiner agrees that footprint shape and length is dictated by a plurality of factors such as carcass shape, aspect ratio, etc. However, appellant is confusing how to obtain a desired footprint with which footprint size should be used. The applied secondary art advise providing a tire with a footprint such that steep slant groove and circumferential grooves have a length longer than the footprint - only the expected results of draining water from the footprint being obtained.

Japan 413 (two columns of tetragon blocks)

This rejection using Japan 413 is similar to the above rejection using Europe 456 in that (1) Japan 413 and Europe 456 teach elongated blocks separated by steeply slant grooves and (2) the secondary art is applied for their teachings as to the footprint that should be provided for a tire. This rejection using Japan 413 addresses dependent claims (e.g. claims 6 and 7) not addressed by the rejection using Europe 456. As with Europe 456, the obviousness issue is what length the footprint of Japan 413's tire should have. No modification of the length of Japan 413's grooves is necessary.

Appellant argues that Japan 413 is silent about the circumferential length of the central blocks relative to a footprint length. However, at least of one of Japan 207, Cesarini et al and Iwamura et al suggest providing the steeply slant grooves 6 and long blocks 8 of Japan 413 such that they have a length longer then the footprint in order to provide the tire with the desired wet performance. Since the same secondary references are used in both the Europe 456 and Japan 413 rejections, attention is directed to examiner's discussion of these references in his response to appellant's arguments to the Europe 456 rejection.

Appellant argues that an asserted similarity in tread patterns and the fact that both tires will be used on wet roads is not motivation for the combination. This argument is not persuasive as the secondary references advise one of ordinary skill that grooves should extend completely across the entire length of the footprint so that the tire has desired water drainage and can be used on wet roads. The secondary references show that the grooves which should extend across the footprint include steep slant grooves. Since grooves 6 of Japan 413 are steep slant grooves, one of ordinary skill in the art would have found it obvious in light of the secondary references to provide the footprint of Japan 413's tire such that the steep slant grooves 6 (and consequently the long blocks 8 defined by the steep slant grooves 6) have a length longer than the footprint.

With respect to Japan 207, appellant argues that there is no relationship between the footprint length and any groove length. Examiner disagrees. Figure 1 shows the relationship between the footprint and the circumferential grooves 19L, 19R and steep slant groove 26. In particular, Japan 207's figure 1 shows the circumferential grooves 19L, 19R and steep slant groove 26 as having a length longer than the length of the footprint 20. This arrangement obtains a tire for use on wet roads because the grooves which extend across the length of the footprint drain water.

Appellant recognizes that water drainage benefits can be achieved in the treads shown in prior art figures 3 and 4 of Japan 207. The treads in figures 3 and 4 obtain water drainage benefits because the six and five circumferential grooves 5, which are illustrated as extending across the entire length of the footprint, drain water. Since

Japan 207's figure 1 tread contains fewer than four circumferential grooves, one of ordinary skill in the art would readily appreciate that the reason why groove 26 extends across the footprint is to provide three grooves 19L, 19R and 26, which extend across the footprint to thereby provide desired water drainage.

Appellant argues that Japan 207's inclined block walls forming the main circumferential grooves are for improved performance for wet roads. Contrary to appellant's argument, Japan 207 inclines the block walls at angle theta to improve wandering performance instead wet performance.

Appellant argues that selecting a footprint length is never discussed in Japan 207. More properly, Japan 207 shows a footprint 20 having a length such that grooves 19L, 19R and 26 can extend completely there across. Furthermore, Japan 413 and Japan 207 have the same tread structure of shoulder blocks. Japan 207 shows four shoulder blocks in the footprint and Japan 413 teaches that the central blocks may have a length of 5 times the length of the shoulder blocks. These teachings suggest and point toward providing Japan 413's tire with a footprint such that the central block has a length at least equal to the footprint length.

Appellant argues that Cesarini et al's teaching to provide slant grooves with a length longer than the footprint in order to drain water under the footprint is integral with the remaining teachings of Cesarini et al and cannot be viewed in isolation. Examiner agrees that Cesarini et al motivates one of ordinary skill in the art to provide a tire with a footprint such that slant grooves have a length longer than the footprint length in order to drain water from under the tire. This teaching has been viewed together with Japan

413's desire for an all weather tire. Motivated by the desire found in Japan 413 for an all weather tire, one of ordinary skill in the art would have found it obvious to provide the footprint of Japan 413's tire such that steep slant groove 6 (and long block 8) have a length longer than the footprint with the expected result of improved drainage of water form under the footprint being obtained.

With respect to Iwamura et al, appellant argues that Iwamura et al teaches that the termination point of each main groove must be in the footprint. Appellant has misread Iwamura et al. Iwamura et al fails to teach that the termination point of each main groove must be in the footprint. In contrast, Iwamura et al teaches that each slant main groove must have a "length" (col. 2 line 6) such that at least one end of the main groove is open at the edge of the footprint in order to obtain required water dissipating capability.

With respect to appellant's argument that Iwamura et al requires at least one termination point in the footprint, appellant continues with the observation that if the groove were longer than footprint, there would be no end in the footprint contrary to the taught important feature of Iwamura et al. This argument makes no sense. This argument is inconsistent with figure 3 of Iwamura et al because the steep slant groove identified with the numbers 1 in a circle has two open ends and therefore violates this alleged important requirement of at least one termination point in the footprint. Furthermore, if both termination ends were in the footprint, the water would be trapped under the tire so as to prevent water-dissipating capability when so trapped.

Appellant comments that closed ends 2i remain in the ground contact patch (footprint). Appellant's argument is off-point. Col. 2 lines 6-10 is discussing the need for *at least one* open end instead of at least one closed end.

Appellant argues that the combination of Japan 413 and Iwamura et al would result in shorter steep slant grooves. Examiner disagrees. Iwamura et al shows three shoulder grooves 4 in the footprint on the left side. The use of a footprint as shown in figure 3 of Iwamura et al for Japan 413's tire would result in three of Japan 413's shoulder grooves 7 appearing in the footprint. When only three of Japan 413's shoulder grooves appear in the footprint, the block 8 of Japan 413 has a length longer than the footprint.

With respect to appellant's arguments as to secondary references taken collectively, the secondary art when considered as a whole teach toward providing the footprint of Japan 413's tire such that a steeply slant groove 6 of Japan 413 extends completely across the length of the footprint - only the expected result of improving drainage of water from the footprint being obtained.

claim 21

With respect to claim 21, appellant argues that Japan 413 never teaches forming an asymmetrical tire tread wherein the tread has only a single column of tetragon shaped blocks located in only one half. This argument is not persuasive. Claim 21 requires "the tread comprising a single row" instead of "the asymmetrical tread has only a single row". Claim 21 reads on a tread wherein one tread half has only one row of tetragon blocks. Japan 413 satisfies this requirement.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Steven D. Maki
September 17, 2007

STEVEN D. MAKI 9-17-07
PRIMARY EXAMINER

Conferees:

Romulo Delmendo R.F. Delmendo, Appeals Specialist

Richard Crispino R Crispino

GOODYEAR TIRE & RUBBER COMPANY
INTELLECTUAL PROPERTY DEPARTMENT 823
1144 EAST MARKET STREET
AKRON OH 44316-0001